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IMPROVEMENTS IN SECURITY DOOR FRAMES

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(57) Claim

1. A section including: a main body portion which is substantially parallelepipedal when viewed in cross-section, said main body portion having extending from one lateral surface thereof, and substantially normally thereto, at least one arm member, said at least one arm member being disposed at or in the vicinity of one end of said lateral surface and having a substantially hook-shaped projection at the free end thereof, and wherein said main body portion includes, at or in the vicinity of the other end of said lateral surface, a hook-shaped projection forming, with said lateral surface, a substantially C-shaped cavity.

6. The section as claimed in any one of the preceding claims, constructed of a metal.

13. A method of assembling a frame for a security door or the like, utilising a plurality of sections as claimed in any one of claims 1 to 9, together with a plurality of clip members as claimed in any one of claims 10 to 12, in conjunction with a safety door grille and one or more layers of mesh material, together with a spline material of any suitable type.

P/00/011
Regulation 3.2

AUSTRALIA

PATENTS ACT 1990

COMPLETE SPECIFICATION

FOR A STANDARD PATENT

ORIGINAL

TO BE COMPLETED BY APPLICANT

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Invention Title: "IMPROVEMENTS IN SECURITY DOOR FRAMES"

The following statement is a full description of this invention, including the best method of performing it known to me:-

The present invention relates, in general terms, to a door frame assembly for a security door, and to certain of the components thereof. More particularly, but not exclusively, the invention relates to a door frame assembly for a security door, more especially a security door of aluminium or the like material and also to certain components of such assembly, with the assembly exhibiting significant improvements over the prior art.

In accordance with the known art security doors of this general type include, as their principal components, an assembly of extrusions which are interconnectable to form a frame, a grille or the like and perhaps at least one sheet of insect-proof mesh material of any given type. Such arrangements have been found to suffer from a disadvantage in terms of there being a tendency for the mesh to in effect roll out or away from the frame, thereby leaving gaps through which insects and the like can enter, thereby defeating one major purpose of the door itself.

The present invention seeks to overcome the problems and disadvantages associated with the prior art by providing an improved door frame assembly wherein this tendency for mesh or the like to separate or roll out is minimised, if not removed altogether. The door thus produced is more effective, more durable, etc.

In accordance with one aspect of the present invention there is provided a section including: a main body portion which is substantially parallelepipedal when viewed in cross-section, said main body portion having extending from one lateral surface thereof, and substantially normally thereto, at least one arm member, said at least one arm member being disposed at or in the vicinity of one end of said lateral surface and having a substantially hook-shaped projection at the free end thereof, and wherein said main body portion includes, at or in the vicinity of the other end of said lateral surface, a hook-shaped projection forming, with said lateral surface, a substantially C-shaped cavity.

In accordance with a further aspect of the present invention there is provided a clip or clamp member, being of a substantially elongate shape and having opposed hook-shaped projections at opposite ends thereof, said clamp member including a flat portion disposed substantially centrally thereof, said flat portion being defined by opposed discontinuities.

In accordance with yet another aspect of the present invention there is provided an improved security door, made up of a plurality of extrusions and clamp members of the aforementioned type.

In order that the invention may be more clearly understood and put into practical effect there will now be made to preferred embodiments of a security door frame assembly, and components thereof, in accordance with the present invention. The ensuing description is given by way of non-limitative example only and is with reference to the accompanying drawings, wherein:

FIG. 1	is a side elevational view of a first embodiment of a section or extrusion in accordance with the present invention, for use in a frame assembly;
FIG. 2	is a side elevational view of a second embodiment of a section or extrusion in accordance with the present invention, for use in a frame assembly;
FIG. 3	is a side view of a clamp bar for use with the security door sections as illustrated in FIGS. 1 and 2;
FIG. 4	is an exploded view of a section of a door frame assembly in accordance with the embodiment of FIGS. 1 and 3;
FIGS. 5 and 6	are side elevational views of a frame assembly incorporating sections in accordance with the embodiments of FIGS. 1 and 2 respectively; and a clamp bar in accordance with FIG. 3;
FIG. 7	is a side view of a further embodiment of a section or extrusion for use in a frame assembly in accordance with the present invention;
FIG. 8	is a side view of a clamp or step bar for use with the security sections illustrated in FIGS. 7 and 8;
FIG. 9	is a side view of yet another embodiment of a frame assembly in accordance with the embodiments of FIGS. 7 and 8; and
FIGS. 10 and 11	are views similar to FIGS. 7 and 9, of yet a further embodiment of components of an assembly in

accordance with the present invention.

As illustrated in Figs. 5 and 6 first and second embodiments of an assembly in accordance with the present invention includes a first extrusion or main frame member, generally designated 1, a clamp member generally designated 2, a safety door grille of any given type and generally designated 3, at least one layer of a mesh or the like insect-resistant material, as for example fibreglass and generally designated 4, and preferably a further layer of a stronger mesh material 5, whereby to impart increased security to the overall assembly. The overall assembly can be achieved by utilising a plurality of the aforementioned individual components, in conjunction with suitable jointing means such as, for example, pop rivets 6 or the like. The various components making up the assembly can be produced in any suitable manner - as for example by extrusion - and from any suitable material, preferably aluminium.

Turning now to Figs. 1 and 2, a first extrusion or main frame member 1 is constructed preferably of a material such as aluminium or the like, but it should be understood that the actual material of construction is not of the essence of the invention and that any other material, as for example steel or the like, could equally well be employed. The main frame member 1 includes a main body portion 11 which is substantially parallelepipedal when viewed in cross-section and, in the especially preferred embodiment as illustrated, for example, in Figure 1, the main body portion 11 includes at least two projecting ribs or the like members 12 extending normally therefrom, said ribs or the like members 12 being adapted to provide a seating means for a stiffener or stiffening member 7 of any given type, adapted to be disposed within the main body portion 11 as shown in Fig. 5 said stiffening member 7 being intended to afford greater rigidity and strength to the overall assembly. In an especially preferred embodiment the stiffening member 7 can take the form of a mild steel extrusion which is itself substantially parallelepipedal in cross-section (as shown in Fig. 5).

The main frame member 1 includes, at or in the vicinity of the one end of the upper or top surface thereof, a first arm member 13 extending substantially normally therefrom. The first arm member 13 includes respective first and second hook-shaped projections 14 and 15, with the first projection 14 being disposed at the free end of said first arm member 13 and the second projection 15 being

disposed substantially inwardly therefrom. These projections 14 and 15 will serve as bearing surfaces for a safety door grille 3 in a manner to be described in more detail hereinafter.

The main frame member 1 also includes a second arm member 16, disposed inwardly from said first arm member 13 and extending substantially normally from the upper surface thereof. The second arm member 16 is to serve a dual purpose, firstly as a seating for a safety door grille 3 and secondly to provide, with the upper or lateral surface of the main frame member 1, a substantially C-shaped cavity 17 for housing a spline or the like member 8 of any suitable material, as for example plastics material, intended to assist in retaining a layer of mesh material or the like 4 in place on the door. To assist in such retention, preferably the opposed side surfaces forming said cavity are serrated as shown along at least part of their length.

The assembly in accordance with the present invention also includes a clamp or clip member 2 as illustrated, the said clamp or clip member 2 being adapted, in use, to co-operate with the main frame member 1, in conjunction with suitable mesh strips 4 and 5 and the aforementioned safety door grille 3, whereby to result in the creation of the overall door assembly. In the preferred embodiment illustrated the clamp or clip member 2 includes, at one free end thereof, hook-shaped projection 21 adapted, in use, to co-operate with a blind bore or indent 18 provided at or in the vicinity of the aforementioned upper lateral surface of the main frame member 1, whereby to assist in correct location of the overall assembly. The clamp or clip member 2 also includes a second shaped projecting arm 22 adapted, in use, to be in engagement with spline 8 whereby to assist in maintaining the integrity of the mesh material. In the especially preferred embodiment illustrate the clamp or clip member 2 also includes a flat portion 23 which is adapted, in use, to have a pop rivet or the like affixture means 6 disposed therein in any known manner, thereby even further ensuring the integrity of the overall assembly.

The principle of operation of the overall assembly is as follows. A grille or the like 3 of any given type is first disposed as illustrated relative to the first and second arm members 13 and 16 of the extrusion 1, with the second arm member 16 acting as a seating therefor. Mesh material 4 and 5 of any given type can then

be disposed relative to the grille 3 and is adapted to extend into the cavity 17 provided by the shaped second arm member 16. Preferably a spline material 8 of any given type will be adapted, in use, to be disposed within that cavity 17 whereby to assist in maintenance of the integrity of the mesh and of the tensile load needed to be applied thereto. The clamp member 2 is then located as illustrated relative to the overall assembly and affixed in place as for example by the use of a pop rivet or the like means 6.

Turning now to Figs. 7 to 11, the embodiments therein include a main frame member, generally designated 100, having a main body portion 111 which is substantially parallelepipedal in shape when viewed in cross-section. In the especially preferred embodiment as shown in Figs. 10 and 11 the main body portion 111 includes at least two projecting ribs or the like members 112 adapted to provide a seating means for a stiffener, in like manner to the arrangements described earlier with reference to the embodiments of Figs. 1 to 6.

The main frame member 100 includes, at or in the vicinity of one end of upper or top surface thereof, an arm member 113 extending substantially normally therefrom. The arm member 113 has a hook-shaped projection 114 at the outer or free end thereof, a rib or the like projection 115 extending laterally therefrom and spaced from the projection 114 as shown. A further arm member 116 extends normally from the side of the arm member 113 as shown, said arm members 113 and 116 being so shaped and disposed as to form therebetween a substantially C-shaped cavity 117. Disposed below the arm member 116 and spaced therefrom is a further projection or arm member 118. Opposed surfaces of arm members 116 and 118 are provided with serrations as illustrated, such serrations extending along at least part of each member 116 and 118.

The upper surface of the main body portion 100 includes, at the other free end thereof, a substantially hook-shaped projection 119 which, with the shaped upper surface, forms or provides a substantially C-shaped cavity 120.

Fig. 8 illustrates an alternative form of clamp or clip member, generally designated 200, the said clamp or clip member 200 being adapted, in use, to co-operate with the main frame member 100, in conjunction with suitable mesh strips and the aforementioned safety door grille, whereby to result in the creation of the overall door assembly. In the embodiment illustrated in Fig. 8 the clamp or clip

member 200 includes, at the free ends thereof, opposed hook-shaped projections 201 and 202. The projection 202 is adapted, in use, to co-operate with the projection 119 provided at or in the vicinity of the aforementioned upper lateral surface of the main body portion 111, whereby to assist in correct location of the overall assembly. The clamp or clip member 200 further includes a flat portion 205 adapted, in use, to be in engagement with a spline or the like (not shown) whereby to assist in maintaining the integrity of any mesh material employed. In the especially preferred embodiment illustrated the clamp or clip member 200 also includes a further flat portion 210 which is adapted, in use, to have a pop rivet or the like affixture means (not shown) disposed therein in any known manner, the shank portions of such being disposed between the arm members 116 and 118, thereby even further ensuring the integrity of the overall assembly.

The embodiments of Figs. 7 to 11 act and co-operate, in like manner to those in Figs. 1 and 2, with grille means 3, layers of mesh 4 and 5 and pop rivets 6 whereby to give rise to an improved security door assembly.

Finally it is to be understood that the aforegoing description refers merely to preferred embodiments of the invention and that variations and modifications will be possible thereto without departing from the spirit and scope of the invention, the ambit of which is to be determined from the following claims.

The claims defining the invention are as follows:

1. A section including: a main body portion which is substantially parallelepipedal when viewed in cross-section, said main body portion having extending from one lateral surface thereof, and substantially normally thereto, at least one arm member, said at least one arm member being disposed at or in the vicinity of one end of said lateral surface and having a substantially hook-shaped projection at the free end thereof, and wherein said main body portion includes, at or in the vicinity of the other end of said lateral surface, a hook-shaped projection forming, with said lateral surface, a substantially C-shaped cavity.

2. The section as claimed in claim 1, wherein said main body portion includes at least two spaced-apart arm members extending normally from said lateral surface, a first of said arm members being at or in the vicinity of one end of said lateral surface and the second of said arm members, spaced from said first arm member, forming with said lateral surface a substantially C-shaped cavity.

3. The section as claimed in claim 2, wherein said first arm member includes a further hook-shaped projection spaced from said end projection and providing, with said second arm member, a seating for releasably receiving and retaining a panel or the like member.

4. The section as claimed in claim 1, wherein said at least one arm member includes, extending substantially laterally and normally therefrom, respective second and third projections, said second and third projections having opposed surfaces providing therebetween a longitudinal cavity.

5. The section as claimed in claim 4, wherein said opposed surfaces of said second and third projections have serrations extending along at least a portion of the length thereof.

6. The section as claimed in any one of the preceding claims, constructed of a metal.

7. The section as claimed in claim 6, wherein said metal is aluminium.

8. The section as claimed in claim 6 or claim 7, formed in an extrusion operation.

9. The section as claimed in any one of the preceding claims, wherein said main body portion includes at least one rib extending inwardly from opposed inside surfaces of the longitudinal sides thereof.

10. A clip or clamp member, being of a substantially elongate shape and having opposed hook-shaped projections at opposite ends thereof, said clamp member including a flat portion disposed substantially centrally thereof, said flat portion being defined by opposed discontinuities.

11. The clamp member as claimed in claim 10, constructed of a metallic material.

12. The clamp member as claimed in claim 11, wherein said metallic material is aluminium.

13. A method of assembling a frame for a security door or the like, utilising a plurality of sections as claimed in any one of claims 1 to 9, together with a plurality of clip members as claimed in any one of claims 10 to 12, in conjunction with a safety door grille and one or more layers of mesh material, together with a spline material of any suitable type.

14. A security door assembly, including a plurality of sections as claimed in any one of claims 1 to 9, co-operating with a plurality of clip members as claimed in any one of claims 10 to 12.

15. A section as claimed in claim 1, substantially as described herein with reference to Figs. 1, 2, 4, 5, 6, 7, 9 to 11 of the accompanying drawings.

16. A clip member as claimed in claim 9, substantially as herein described with reference to Figs. 3 and 8 of the accompanying drawings.

DATED this 19th day of August 1994.

OLYMPIC ALUMINIUM COMPANY PTY. LTD.
By their Patent Attorneys:
CALLINAN LAWRIE

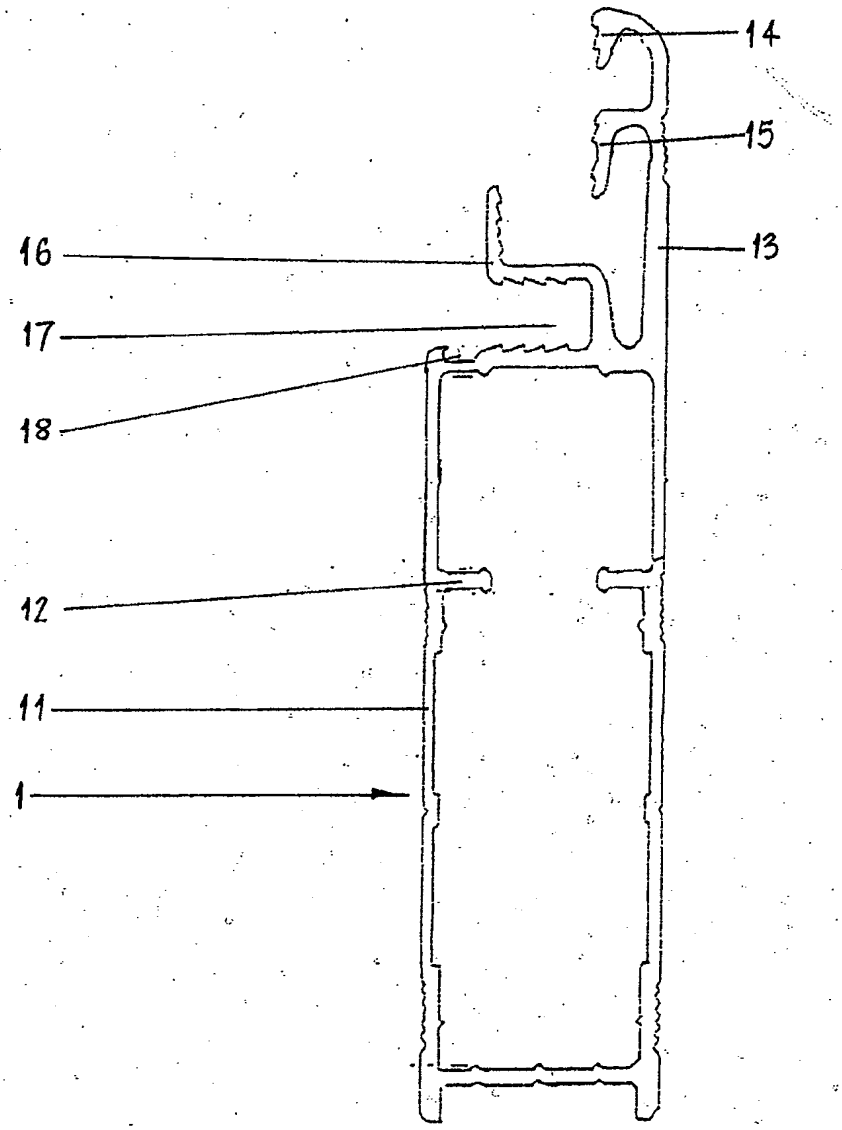

FIG. 1

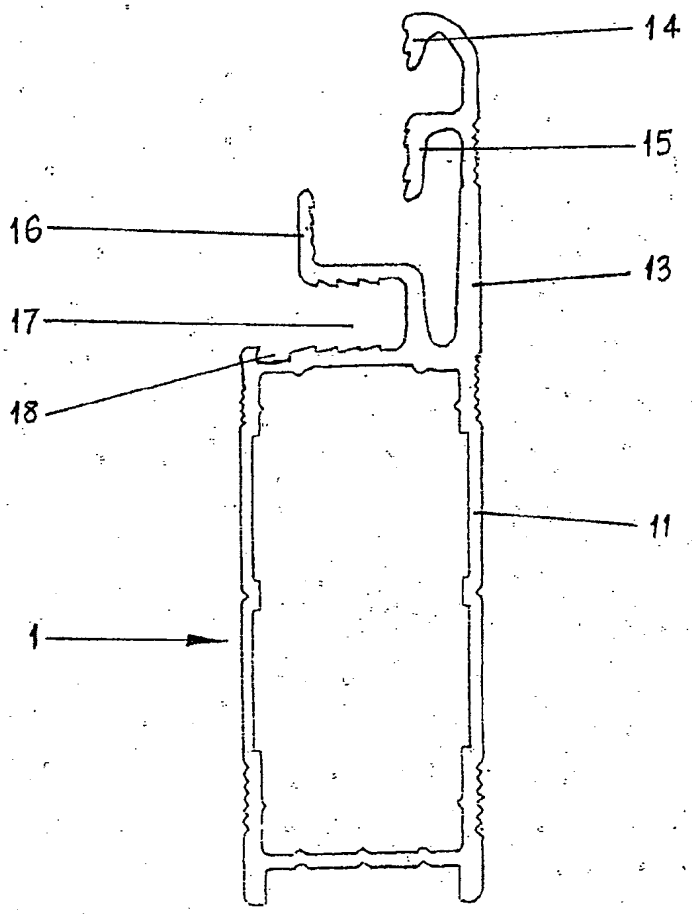

FIG. 2

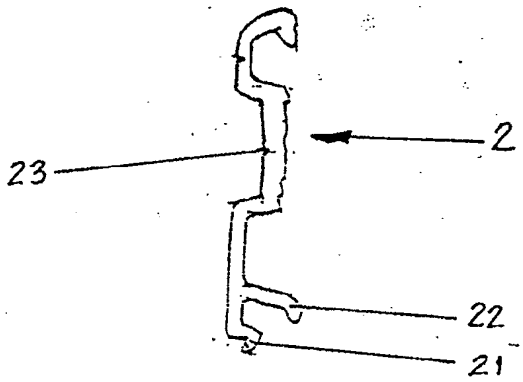

FIG. 3

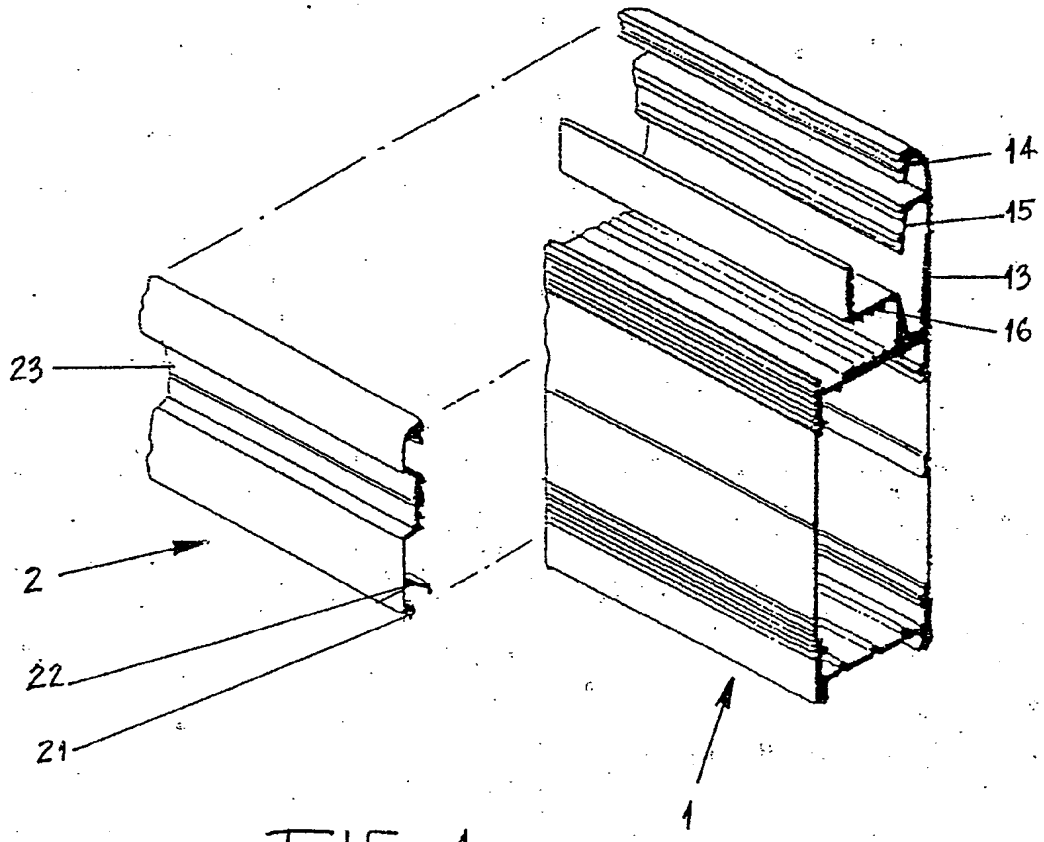

FIG. 4

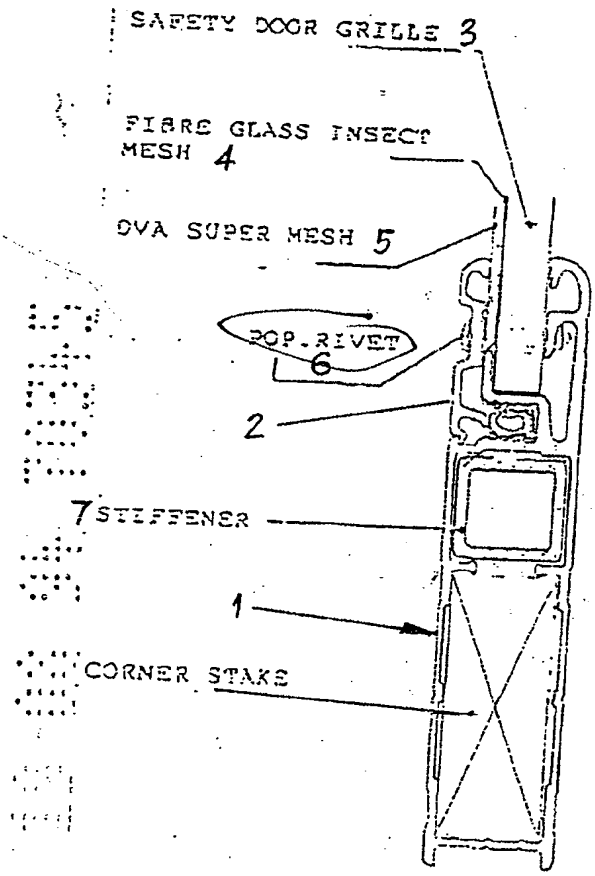
SAFETY DOOR GRILLE 3
FIBRE GLASS INSECT MESH 4
DVA SUPER MESH 5
POP-RIVET 6
2
7 STIFFENER
1
CORNER STAKE

FIG. 5

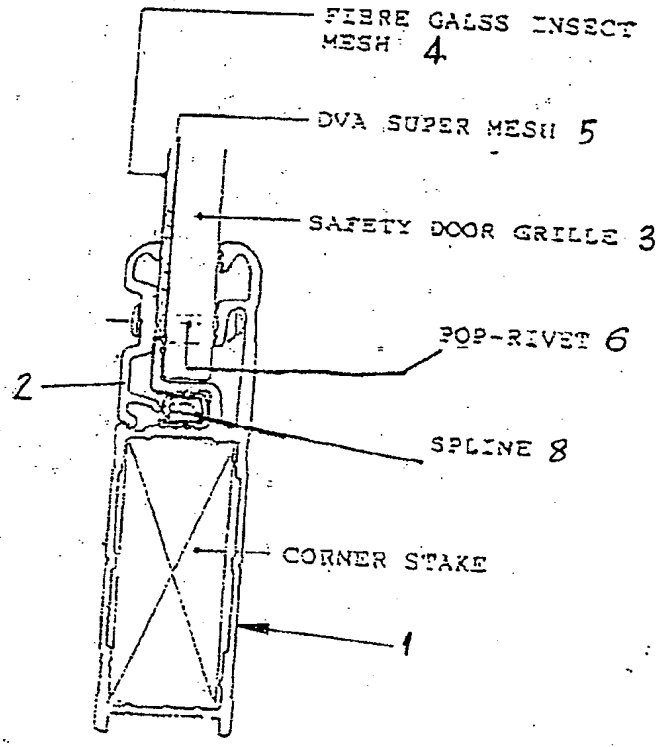
FIBRE GALSS INSECT MESH 4
DVA SUPER MESH 5
SAFETY DOOR GRILLE 3
POP-RIVET 6
2
SPLINE 8
CORNER STAKE
1

FIG. 6

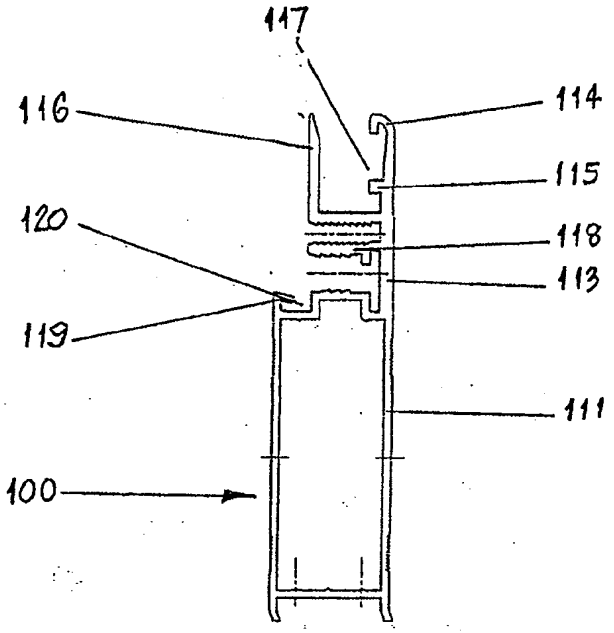
117
116
114
115
120
118
113
119
111
100

FIG. 7

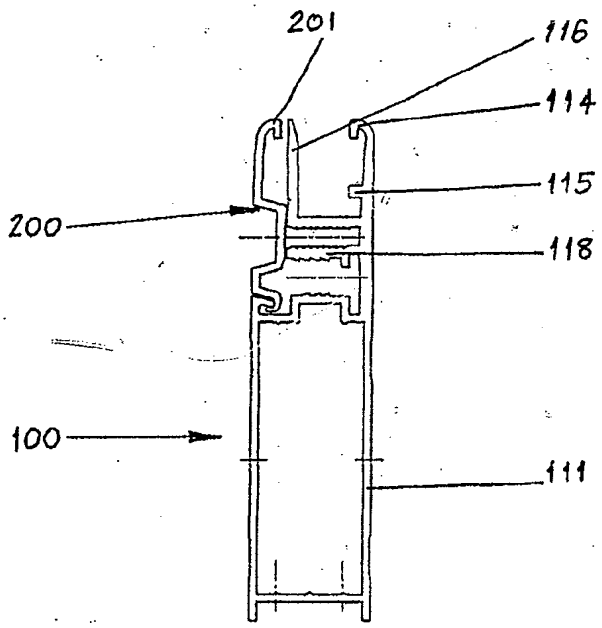
201
116
114
115
200
118
100
111

FIG. 9

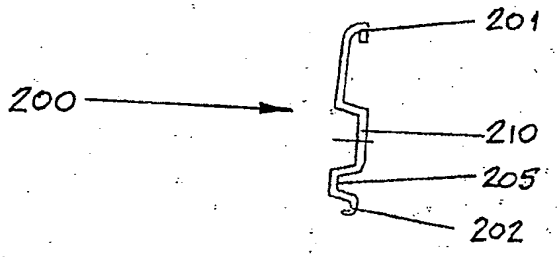

FIG. 8

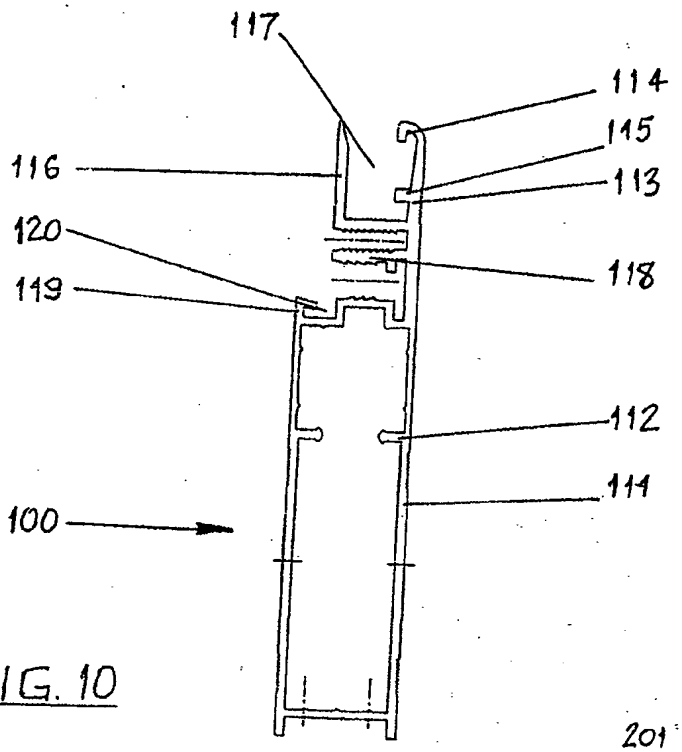
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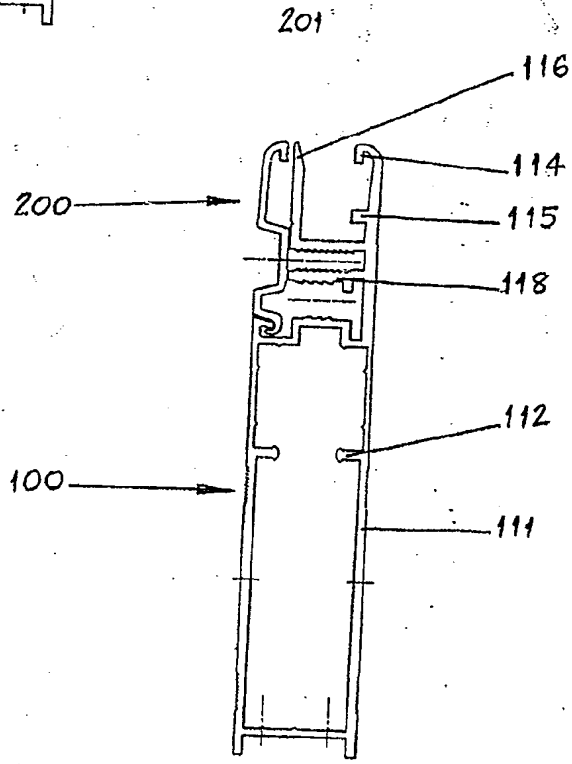
FIG. 10


201
116
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200
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112
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FIG. 11